A simulation was performed evaluating the feasibility of moderating a fast neutron beam to an epithermal energy level in order to perform boron neutron capture therapy. The simulation was performed utilizing the DOT4 Neutron/Photon Transport Code. For the condition of a 60cm filter consisting of a composite of Al/AlF3/LiF, a uniform boron concentration of 50 ppm in a lucite phantom and an 11 MEV proton beam incident on a thick beryllium target, the BNCT dose exceeded the residual fast neutron dose over phantom depths from 1 to 9 cm. The integral under the epithermal component of the filtered neutron spectrum yields a flux density of 5.45×10^5 n/cm^2-sec per 100 microamperes of proton current. This is about 3 orders of magnitude less than is clinically desired for stand-alone BNCT therapy, in order to avoid redistribution of boron with elongated treatment times, but is feasible when BNCT is delivered as a single or multiple boost to a core fast neutron or photon therapy.